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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/771,669	02/04/2004	Yoo-shin Lee	P2072US	3595

8968 7590 08/31/2009

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EXAMINER	
WANG, KENT F	

ART UNIT	PAPER NUMBER
2622	

MAIL DATE	DELIVERY MODE
08/31/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/771,669	LEE ET AL.	
	Examiner	Art Unit	
	KENT WANG	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-22 are pending.

Response to Argument

2. Applicant's arguments with respect to independent claims 1, 8 and 12 and dependent claims 2-7, 9-11 and 13-22 have been have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art references.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-3, 5-7, and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerai (US 2002/0005707) in view of Lee (US 5,861,730).

Regarding claim 1, Kerai discloses an apparatus for charging a battery of a portable electronic device (a portable radio telephone 14) that includes a main controller controlling overall operation of the portable electronic device (a microprocessor 17 is employed to control all the basic functions of the telephone 14 and to control the keypad and display functions, Fig 2), the portable electronic device being connected to a computer USB port (a USB interface or port shown generally as P, Fig 2), the apparatus transferring power from the

computer through the USB port (the handset USB connector 22 must be connected via a USB cable 2 to a USB hub such as a laptop computer 29, Fig 6), the apparatus comprising:

- a charger control portion (charger control circuit 19, Fig 2) electrically connected with the main controller (microprocessor 17, Fig 2), the charger control portion generating charge control signals (power signals, Vbus) ([0024]); and
- a charging portion (charger circuit 19, Fig 2) electrically connected with the charger control portion (charger control circuit 19, Fig 2) and receiving charge control signals (Vbus) from the one or more outputs of the charger control portion (provides a signal indicative of the level of charge to the charger control circuit 19) ([0034]), wherein
- the charging portion (charger circuit 19, Fig 2) operates to charge the battery according to the charge control signals generated by the charger control portion (the charger control circuit 19 will cause the switch 28 to open preventing further depletion of the laptop computer battery and equally preventing overcharging of the handset battery) ([0034]).

Kerai does not disclose a battery type selection signal that is output from the main controller and received at an input of the charger control portion. However, Lee discloses a charger control portion (a microcomputer 300, Figs 3A-3B) electrically connected with the main controller (battery type detecting unit 260, Figs 3A-3B), the charger control portion (300) generating charge control signals (i.e. charging enable signal) at one or more outputs according to a battery type selection signal (i.e. battery type signal) that is output from the

main controller (260) and received at an input of the charger control portion (300), the battery type selection signal distinguishing the battery type of a battery installed in the portable electronic device from a plurality of possible battery types that can be installed in the portable electronic device, wherein differing battery types have differing battery charge characteristics (the battery type detecting unit 260 detects the type of the battery and provides the microcomputer 300 with the battery type signal corresponding to the detected type, as the microcomputer 300 outputs, based on the input signals, i.e. the charging enable signal CE for the charging current control unit 210 to conduct the charging operation according to the type of the battery pack 100) (col. 9, line 35 to col. 11, line 37, Lee).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger control circuit as taught by Lee into Kerai's device, so as the system is capable to provide a mode-convertible battery charging apparatus which can precisely determine a completely charged state of a rechargeable battery and selectively perform the best charging method more efficiently based on the type of battery pack, as those skilled in the art would apply the modification without difficulty (col. 3, 64 to col. 4, line 9, Lee).

Regarding claim 2, the limitations of claim 1 are taught above, Kerai discloses the charge control signals of the control portion comprise a charge start signal (a power signals, Vbus) to enable output of the charging portion (a Vbus power signals from the power pin 24 of the connector 22 is connected via a switch 28 in series with a diode 100 to a conductor 101 connecting the charger jack 20 to the charger control circuit 19) ([0026], Kerai).

Regarding claim 3, the limitations of claim 1 are taught above, Lee discloses the charge

control signals of the control portion comprise a battery type signal (i.e. battery type signal) to control an output voltage level according to the battery selection signal (col. 9, lines 42-60, Lee).

Regarding claim 5, the limitations of claim 1 are taught above, Kerai discloses a USB controller for controlling bidirectional data transmission (received and transmitted data) between the computer and the portable electronic device (a parallel connector 22 on the handset 14 provides connections to an external parallel cable 61 of which two lines carry received and transmitted data 62, 63 respectively to the parallel port 60 of the laptop 29, Fig 6) ([0040], Kerai).

Regarding claim 6, the limitations of claim 1 are taught above, Kerai discloses the battery selection signal is input by a user (a user is able to select, via a menu provided on an otherwise conventional user interface display 30 of the handset 14, one of a number of modes of operation of the power and data transfer connections, Fig 7a) ([0027], Kerai).

Regarding claim 7, the limitations of claim 1 are taught above, Kerai discloses the battery selection signal is input by a battery recognition apparatus (interface ASIC 21, Figs 3-5) ([0027], Kerai).

Regarding claim 21, the limitations of claim 1 are taught above, Kerai discloses a transistor (switch 28, Fig 2) externally connected to the charging portion, the transistor and the charging portion cooperating to charge the battery according to the charge control signals generated by the charger control portion (the charger control circuit 19 will cause the switch 28 to open preventing further depletion of the laptop computer battery and equally preventing overcharging of the handset battery) ([0034], Kerai).

5. Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerai (US 2002/0005707) in view of Lee (US 5,861,730), and further in view of Fischer (US 6,946,817).

Regarding claim 4, the limitations of claim 1 are taught above, Kerai and Lee do not disclose the charge control signals of the control portion comprise a charge voltage control signal and a charge current control signal. However, Fischer discloses the charge control signals of the control portion (the control signal from charge current controller 408) comprise a charge voltage control signal (monitor the voltage level) and a charge current control signal (control the amount of current), which are generated based on the detection of a charge current and a charge voltage from the charging portion (charge current controller 408, Fig 5), to control the charge current and the charge voltage (battery voltage curve 610 and battery current curve 620, Fig 7) (col. 7, lines55-67, Fischer).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger control circuit as taught by Fischer into Kerai and Lee's device, so as the system can be contemplated to provide a more efficient multiple mode charging operation (col. 8, line 62 to col. 9, line 27, Fischer).

6. Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerai (US 2002/0005707) in view of Chen (US 6,498,458).

Regarding claim 12, Kerai discloses a USB cable (a USB cable 2, Figs 1 and 6) for transferring power from a USB receptacle to a portable electronic device (USB devices, Figs 1 and 6) with a power and data port, a battery and a device controller, the USB cable comprising: a first connector (plug 3 or 4, Fig 1) configured to mate with the USB receptacle

(receptacle or port 9 or 10, Fig 1); a second connector (plug 3 or 4, Fig 1) configured to mate with the power and data port; at least two wires electrically connecting the first and second connectors (data lines 25, 26, Fig 5); and the USB battery charger including a charging portion (charger circuit 19, Fig 2) that communicates with the device controller (microprocessor 17, Fig 2) for receiving at least one signal relative to the battery (battery 15, Fig 2), the charging portion (charger circuit 19, Fig 2) adjusting power received from the USB receptacle (a USB interface or port shown generally as P, Fig 2) relative to the at least one signal for charging the battery ([0023] - [0039], Kerai).

Kerai does not disclose a USB battery charger enclosed within the second connector. However, Chen discloses a USB battery charger (a charging chamber 61, Fig 2) enclosed within the second connector (an electric female connector 63, Fig 2), ([0024]-[0028]).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the cable as taught by Chen into Kerai's device, so as to provide a battery charger for communication which provides a handy way of simplifying the charge-up/sync operation and enable the system better capable to provide a faster data transfer (col. 1, 53 to col. 2, line 11, Chen).

7. Claims 13, 15-18, and 20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerai (US 2002/0005707) in view of Chen (US 6,498,458), and further in view of Fischer (US 6,946,817).

Regarding claim 13, the limitations of claim 12 are taught above, Kerai and Chen do not disclose the charge control signals of the control portion comprise a charge start signal to enable output of the charging portion. However, Fischer discloses the charge control signals

of the control portion comprise a charge start signal (soft-disconnect signal 212, Fig 3) to enable output of the charging portion (causes the soft-disconnect switch 202 to reset, disconnect and reconnect) (col. 6, lines 21-34 and Fig 3, Fischer).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger control circuit as taught by Fischer into Kerai and Chen's device, so as the system can be contemplated to provide a more efficient multiple mode charging operation (col. 8, line 62 to col. 9, line 27, Fischer).

Regarding claim 15, the limitations of claims 12-13 are taught above, Fischer discloses the control portion (charging current control 408, Fig 5) comprises the device controller (charging controller 402, Fig 5) (col. 7, lines 41-67, Fischer).

Regarding claim 16, the limitations of claims 12-13 are taught above, Fischer discloses a USB controller for controlling bidirectional data transmission (request capability 1320 and report capability 1340, Fig 12B) between the computer and the portable electronic device (the transmission of request and report data between the mobile device and the USB host) (col. 14, lines 26-39 and Figs 12A and 12B, Fischer).

Regarding claim 17, this claim recites same limitations as claim 16. Thus it is analyzed and rejected as previously discussed with respect to claim 16 above.

Regarding claim 18, the limitations of claims 12 and 17 are taught above, Fischer discloses the at least two wires (a Vbus power line 24 and a data line 26, Fig 1) comprises:

- a first portion (first end of a Vbus power line 24) that interconnects a data interface of the first connector (a port at USB interface 12, Fig 1) with the USB controller (USB controller 14, Fig 1); and

- a second portion (second end of a Vbus power line 24) that interconnects a power interface of the first connector (a port at USB interface 12, Fig 1) with the charging portion (charging subsystem 16, Fig 1) (col. 2, lines 40-57, Fischer).

Regarding claim 20, the limitations of claims 12-13 are taught above, Fischer discloses the charging portion (charging subsystem 16) comprises:

- a linear regulator (power supplies switch 414, Fig 5) for outputting power to the control portion (col. 7, lines 24-40 and col. 8, lines 10-51, Fischer);
- a reference voltage generating portion (charge current control 408, Fig 5) for adjusting a voltage charging the battery (col. 7, lines 41-67, Fischer); and
- a voltage/current regulator (a voltage regulator 412, Fig 5) including an attenuator, a current sense amplifier, a voltage regulation loop compensator and a current regulation loop compensator (col. 7, lines 24-40 and col. 8, lines 38-61, Fischer).

8. Claims 8-11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang (US 2005/0012850) in view of Lee (US 5,861,730), and further in view of Watanabe (US 2003/0025823).

Regarding claim 8, Wang discloses a digital camera (a handheld image capture device, Figs 1-2) connected to a computer (USB interface of a computer, [0037]) by USB to charge a battery by receiving power from the computer through USB (USB connector 120, Fig 1), the digital camera comprising:

- a digital camera controller (an image processing 310, Fig 3); and

- a USB charger (power supply circuit 320, Fig 3) including a USB controller (a USB controller 315, Fig 3) to transmit and receive data through a USB port of the computer (a USB connector is featured with the construction, thus neither a cable nor an external stand is needed for direct connection to the USB interface of a computer) ([0037], Wang).

Wang does not disclose a battery recognition apparatus that distinguishes a type of the battery from a plurality of possible battery types and Wang does not disclose a control portion to generate charge control signals corresponding to the battery type selection signal, a charging portion electrically connected with the control portion, the charging portion operating to charge the battery according to the charge control signals that differ according to battery type from the control portion. However, Lee discloses a battery recognition apparatus (a battery type detecting unit 260, Figs 3A-3B) that distinguishes a type of the battery from a plurality of possible battery types, wherein differing battery types have differing battery charge characteristics and the charging portion (charging current control unit 210) operating to charge the battery according to the charge control signals (i.e. charging enable signal) that differ according to battery type (i.e. battery type signal) from the control portion (a microcomputer 300, Figs 3A-3B) (col. 9, line 35 to col. 11, line 37, Lee). Lee further discloses a control portion (a microcomputer 300, Figs 3A-3B) to generate charge control signals (i.e. charging enable signal) corresponding to the battery type selection signal (i.e. battery type signal), a charging portion electrically connected with the control portion (300), the charging portion (charging current control unit 210) operating to charge the battery according to the charge control signals (i.e. charging enable signal) that differ according to

battery type (i.e. battery type signal) from the control portion (a microcomputer 300, Figs 3A-3B) (col. 9, line 35 to col. 11, line 37, Lee).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the charger control circuit as taught by Lee into Wang's device, so as the system is capable to provide a mode-convertible battery charging apparatus which can precisely determine a completely charged state of a rechargeable battery and selectively perform the best charging method more efficiently based on the type of battery pack, as those skilled in the art would apply the modification without difficulty (col. 3, 64 to col. 4, line 9, Lee).

Wang and Lee do not disclose a power converting portion to receive power from the battery that is charged by the charger and generate and output power having a plurality of voltage levels. However, Watanabe discloses a power converting portion (second regulator 23) to receive power from the battery that is charged by the charger and generate and output power having a plurality of voltage levels (a plurality of voltage levels in accordance with the input level of the external device) ([0034], Watanabe).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the power converting circuit as taught by Watanabe into Kondo and Nishimura's device, so as the system is capable to supply with the optimal operational voltage, thus improves the operational characteristics of the signal processing circuit and the output circuit ([0035], Watanabe).

Regarding claim 9, the limitations of claim 8 are taught above, Lee discloses the charge control signals (i.e. charging enable signal) of the control portion (a microcomputer 300, Figs

3A-3B) comprise a charge start signal to enable output of the charging portion (charging current control unit 210) (col. 9, lines 35-67, Lee).

Regarding claim 10, the limitations of claim 8 are taught above, Lee discloses the charge control signals (i.e. charging enable signal) of the control portion (a microcomputer 300, Figs 3A-3B) comprise a battery type signal (i.e. battery type signal) to control an output voltage level according to the battery selection signal (col. 9, lines 35-67, Lee).

Regarding claim 11, the limitations of claim 8 are taught above, Lee discloses the charge control signals (i.e. charging enable signal) of the control portion (300) comprise a charge voltage control signal (i.e. a battery voltage signal BV) and a charge current control signal (i.e. a charging enable signal CE), which are generated based on the detection of a charge current and a charge voltage from the charging portion (charging current control unit 210), to control the charge current and the charge voltage (col. 10, lines 1-65, Lee).

9. Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Wang (US 2005/0012850) in view of Lee (US 5,861,730) and Watanabe (US 2003/0025823), and further in view of Kerai (US 2002/0005707).

Regarding claim 22, the limitations of claim 8 are taught above, Wang, Lee, and Watanabe do not disclose a transistor externally connected to the charging portion, the transistor and the charging portion cooperating to charge the battery. However, Kerai discloses a transistor (switch 28, Fig 2) externally connected to the charging portion, the transistor and the charging portion cooperating to charge the battery according to the charge control signals generated by the charger control portion (the charger control circuit 19 will

cause the switch 28 to open preventing further depletion of the laptop computer battery and equally preventing overcharging of the handset battery) ([0034], Kerai).

Thus, it would have been obvious to one of ordinary skill in the art at the time this invention was made to choose the external transistor as taught by Kerai into Wang, Lee, and Watanabe's device, so as the system is capable to prevent the battery depletion and equally preventing overcharging of the handset battery ([0034], Kerai).

10. Claim 14 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerai (US 2002/0005707) in view of Chen (US 6,498,458) and Fischer (US 6,946,817), and further in view of Odaohhara (US 6,424,123).

Regarding claim 14, note the discussion of claim 12 above. Kerai, Chen, and Fischer do not teach the control portion comprises a PWM module. However, Odaohhara teaches the control portion comprises a PWM module (PWM controller 112, Fig 4, Odaohhara) for outputting at least one of a voltage control signal (voltage control signal CS2, Fig 4) and a current control signal (charge control signal CS1, Fig 4) (col. 8, lines 26-34, col. 9, lines 18-26, and Fig 4, Odaohhara).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a PWM controller as taught by Odaohhara as modified by Kerai, Chen, and Fischer so that it can minimizing duty cycle to optimize efficiency of matching the reference voltage and boost current delivery (col. 9, lines 3-26, Odaohhara).

11. Claim 19 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kerai (US 2002/0005707) in view of Chen (US 6,498,458) and Fischer (US 6,946,817), and further in view of Hsu (US 6,798,173).

Regarding claim 19, note the discussion of claim 12 above. Kerai, Chen, and Fischer do not teach the first portion comprises a twisted-pair cable. However, Hsu teaches the first portion comprises a twisted-pair cable (col. 3, lines 10-52, Hsu).

It would have been obvious to one of ordinary skill in the art at the time this invention was made to have used a twisted-pair cable as taught by Hsu as modified by Kerai, Nishimura, and Fischer so that it can fitting the data transfer rates of USB and maximum length limitation and further canceling out electromagnetic interference, electromagnetic radiation and crosstalk between neighboring pairs (col. 3, lines 10-52, Hsu).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Yueh (US 2005/0077869) provides a combinational charger for charging a hand-held electronic device at any time and at any place;
- Hsu (2002/0038432) provides a standard USB interface with the functions of charging and data transferring simultaneously, so the invention has the advantages of easy carrying and prolonging the power lifetime of a battery;
- Theobald (US 5,656,917) discloses a battery identification apparatus and associated method; and
- Sakakibara (US 6,124,698) provides a battery charger which can 100% charge a battery without overcharge and which ensures stopping the battery charging.

Inquiries

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Wang whose telephone number is 571-270-1703. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-270-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TUAN HO/
Primary Examiner, Art Unit 2622

KW
27 August 2009